Patent Application

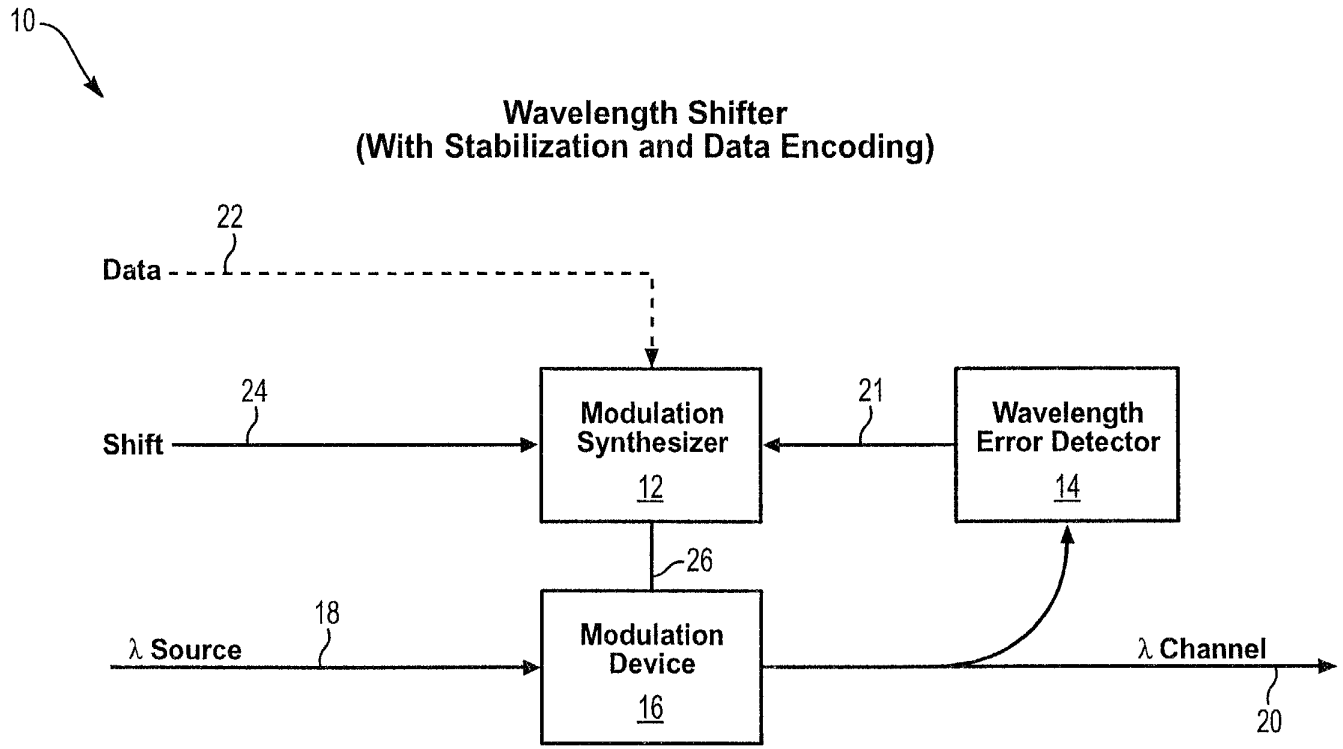


FIG. 1

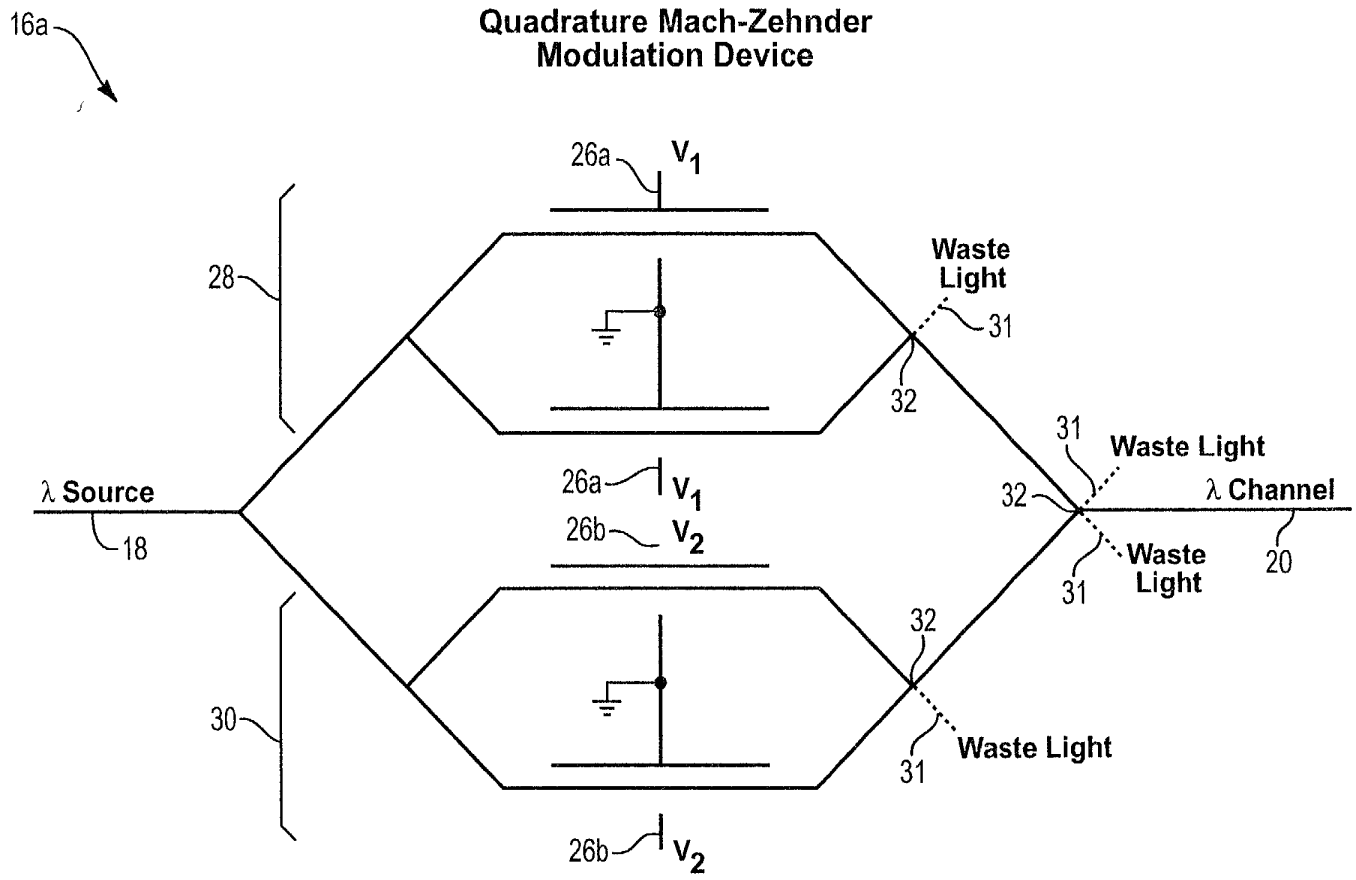

16a
Quadrature Mach-Zehnder
Modulation Device
26a
V_1
28
Waste
Light
31
32
λ Source
18
26a
V_1
26b
V_2
31
Waste Light
32
λ Channel
20
31
Waste
Light
32
30
Waste Light
31
26b
V_2

FIG. 2

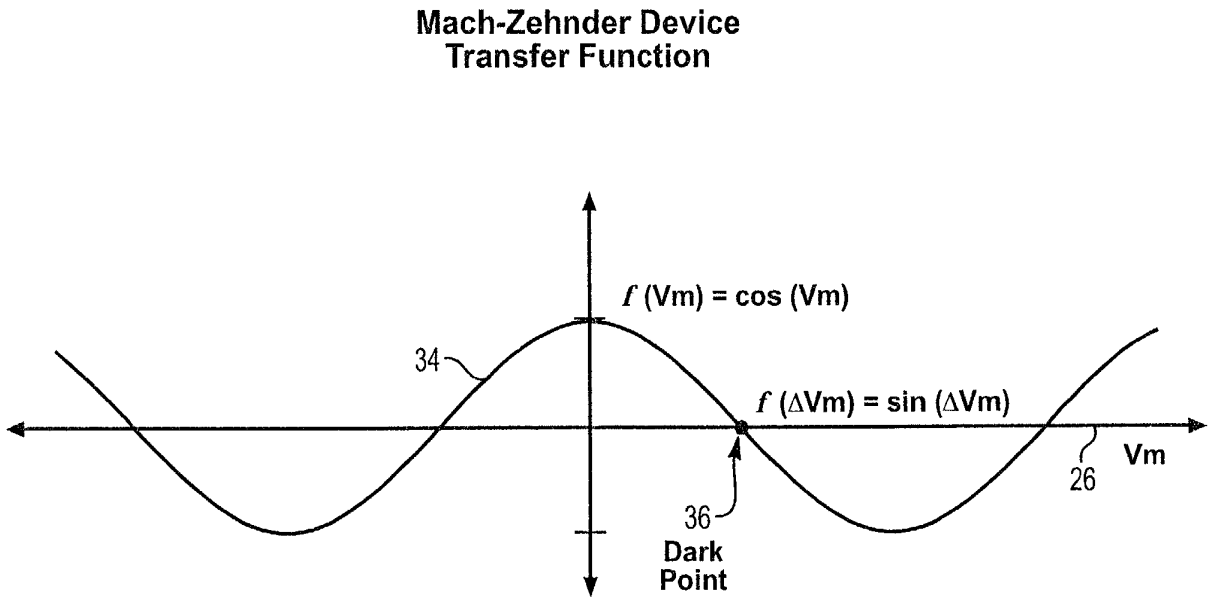

Mach-Zehnder Device
Transfer Function
f (Vm) = cos (Vm)
34
f (ΔVm) = sin (ΔVm)
Vm
26
36
Dark
Point

FIG. 3

PATENT APPLICATION

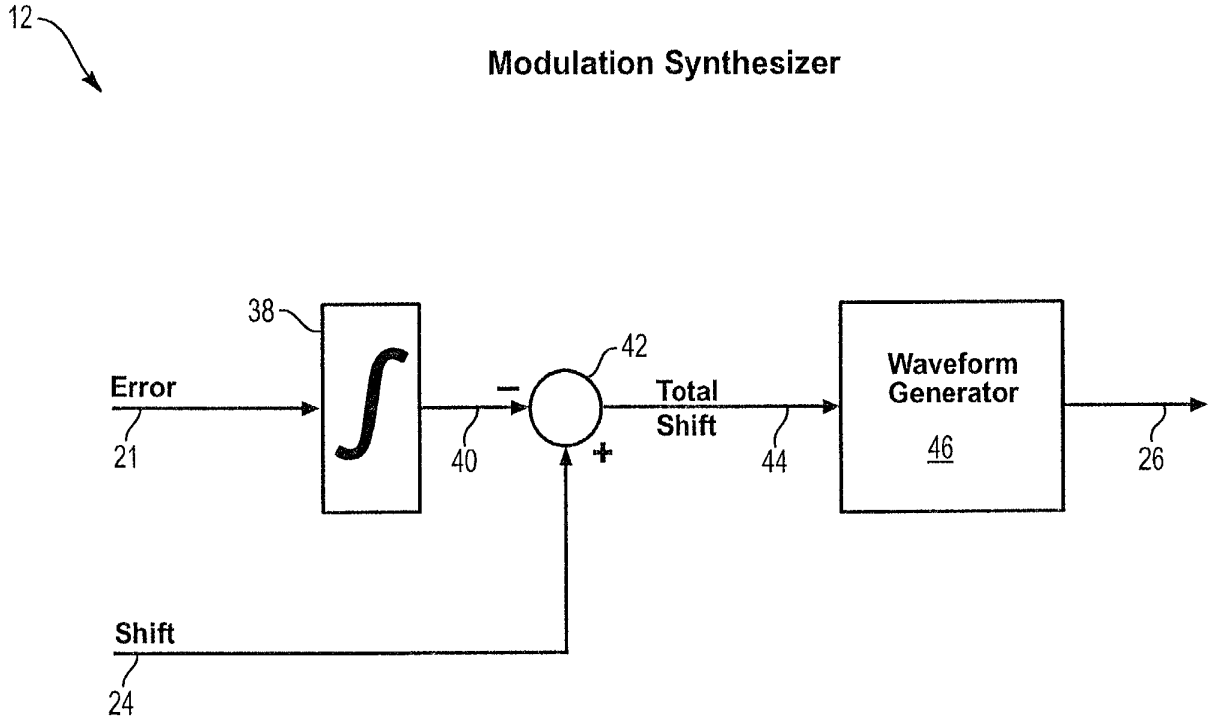


FIG. 4

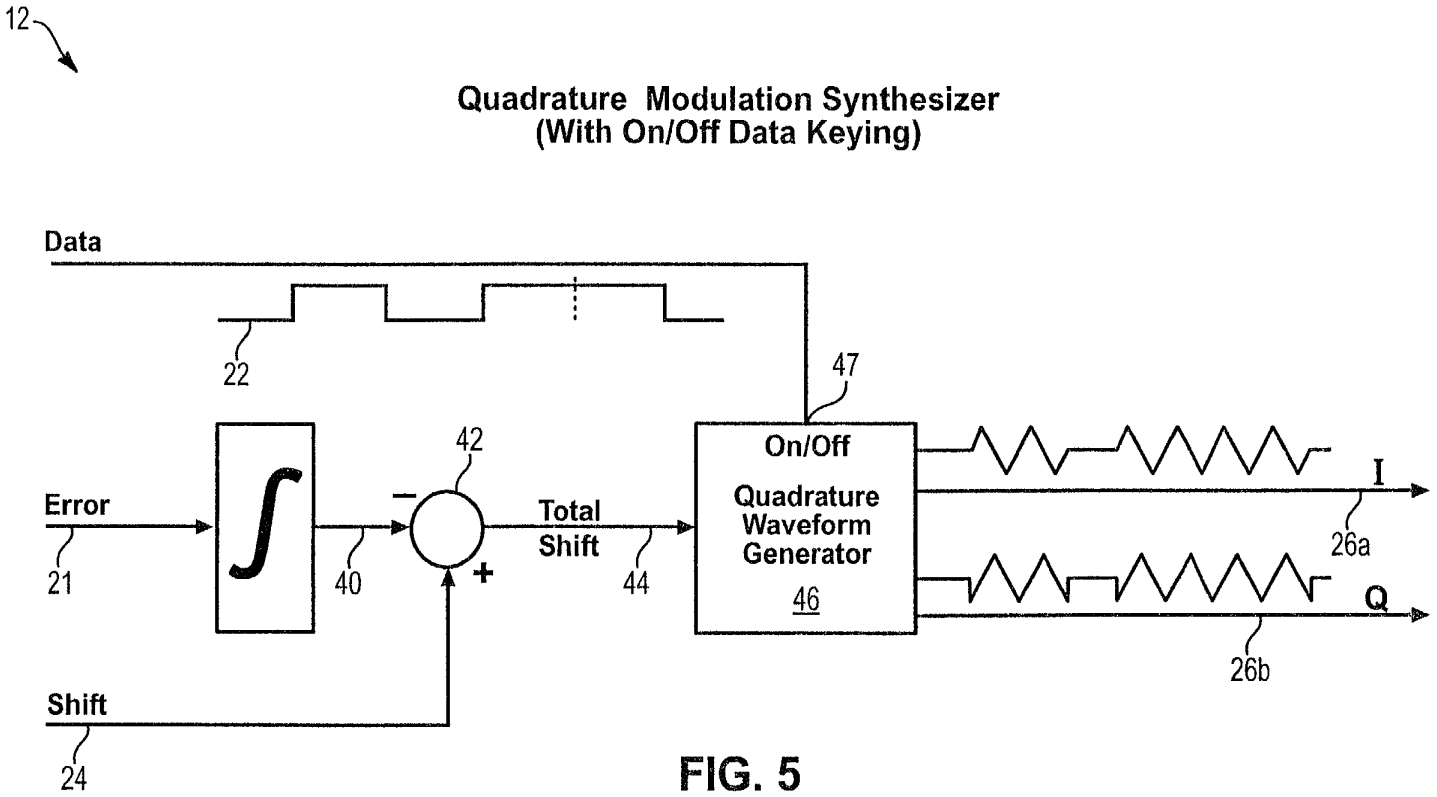

12
Quadrature Modulation Synthesizer
(With On/Off Data Keying)
Data
22
47
Error
21
42
40
Total
Shift
44
On/Off
Quadrature
Waveform
Generator
46
I
26a
Q
26b
Shift
24

FIG. 5

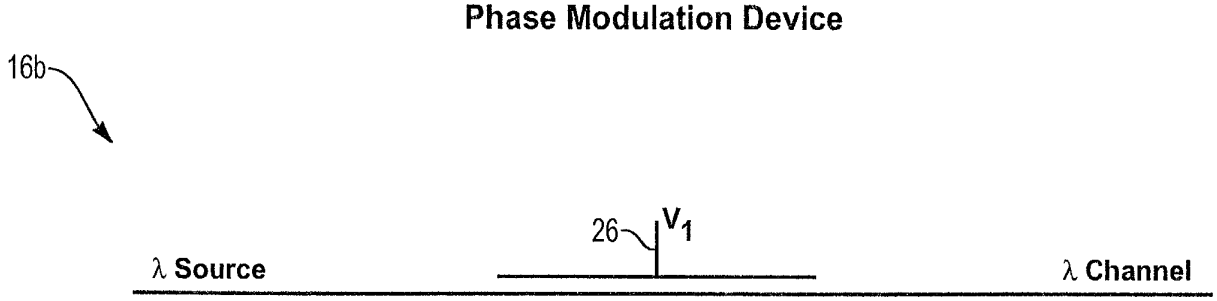


FIG. 6

Patent Application

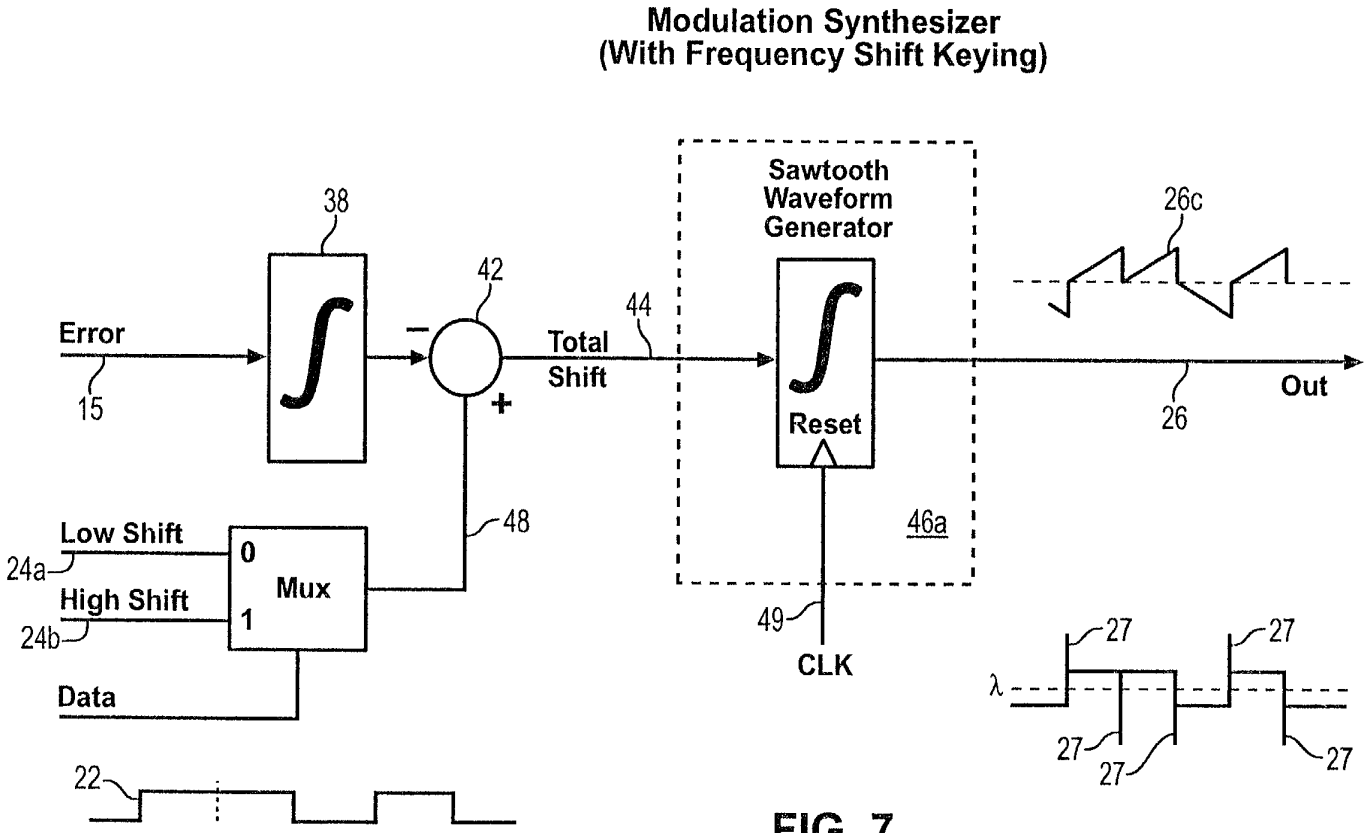


FIG. 7

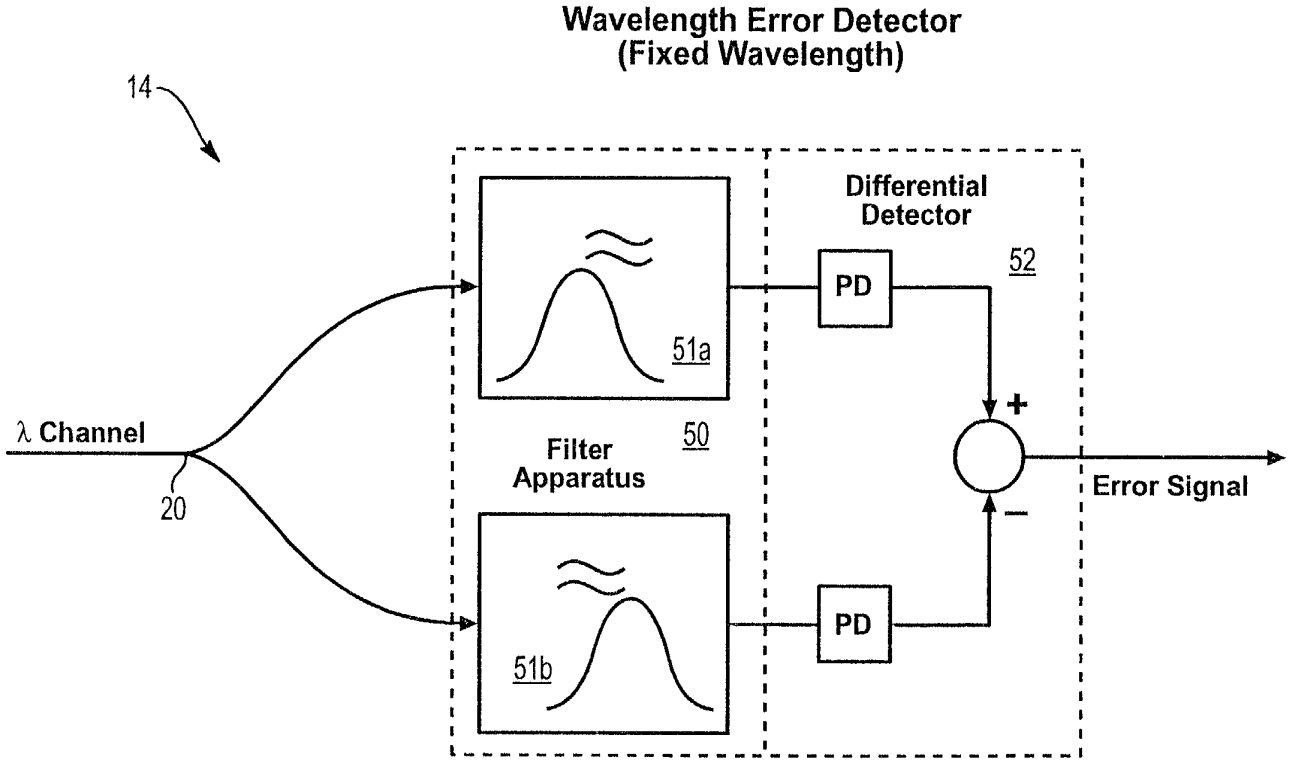

Wavelength Error Detector
(Fixed Wavelength)
14
Differential
Detector
52
PD
51a
λ Channel
Filter
Apparatus
50
+
Error Signal
20
−
PD
51b

FIG. 8

Patent Application

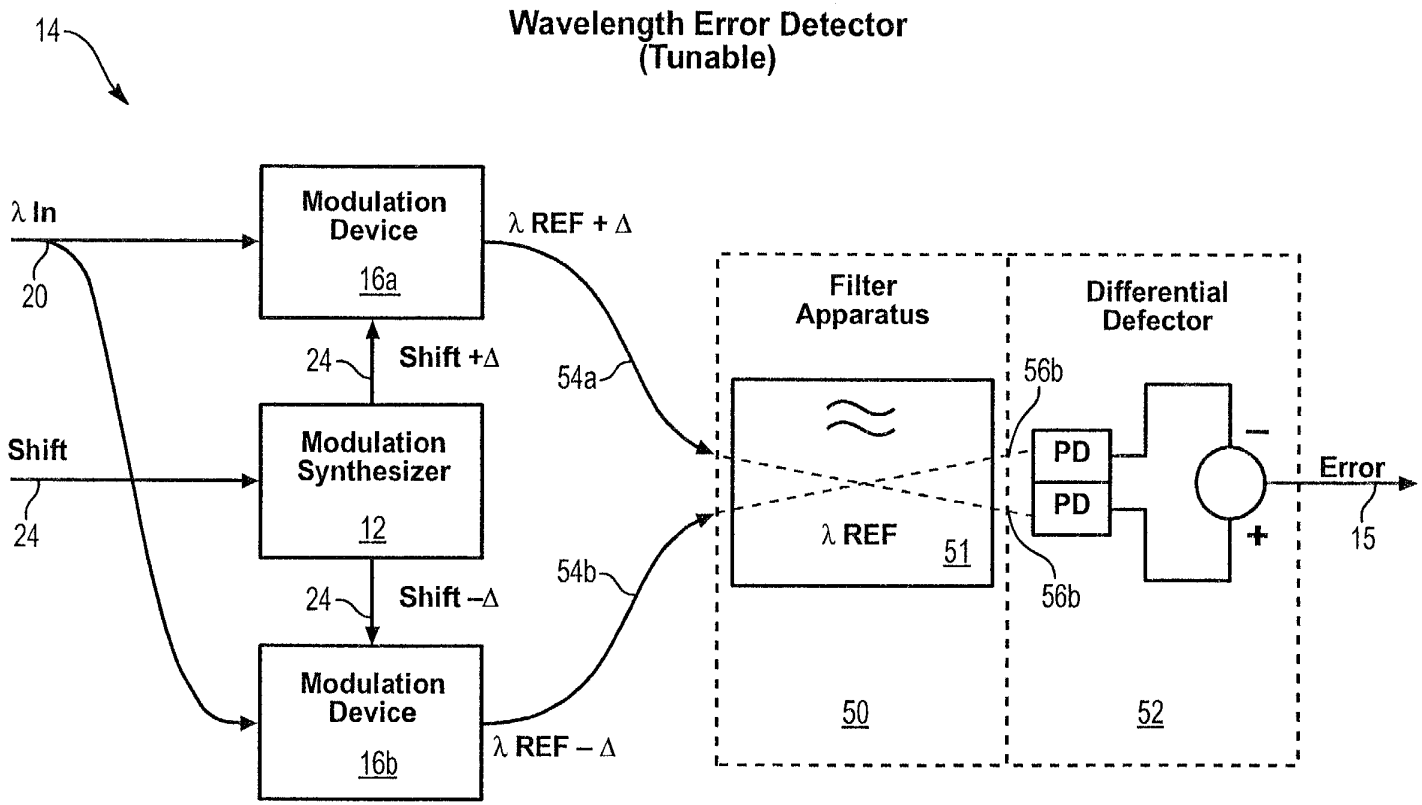


FIG. 9

PATENT APPLICATION

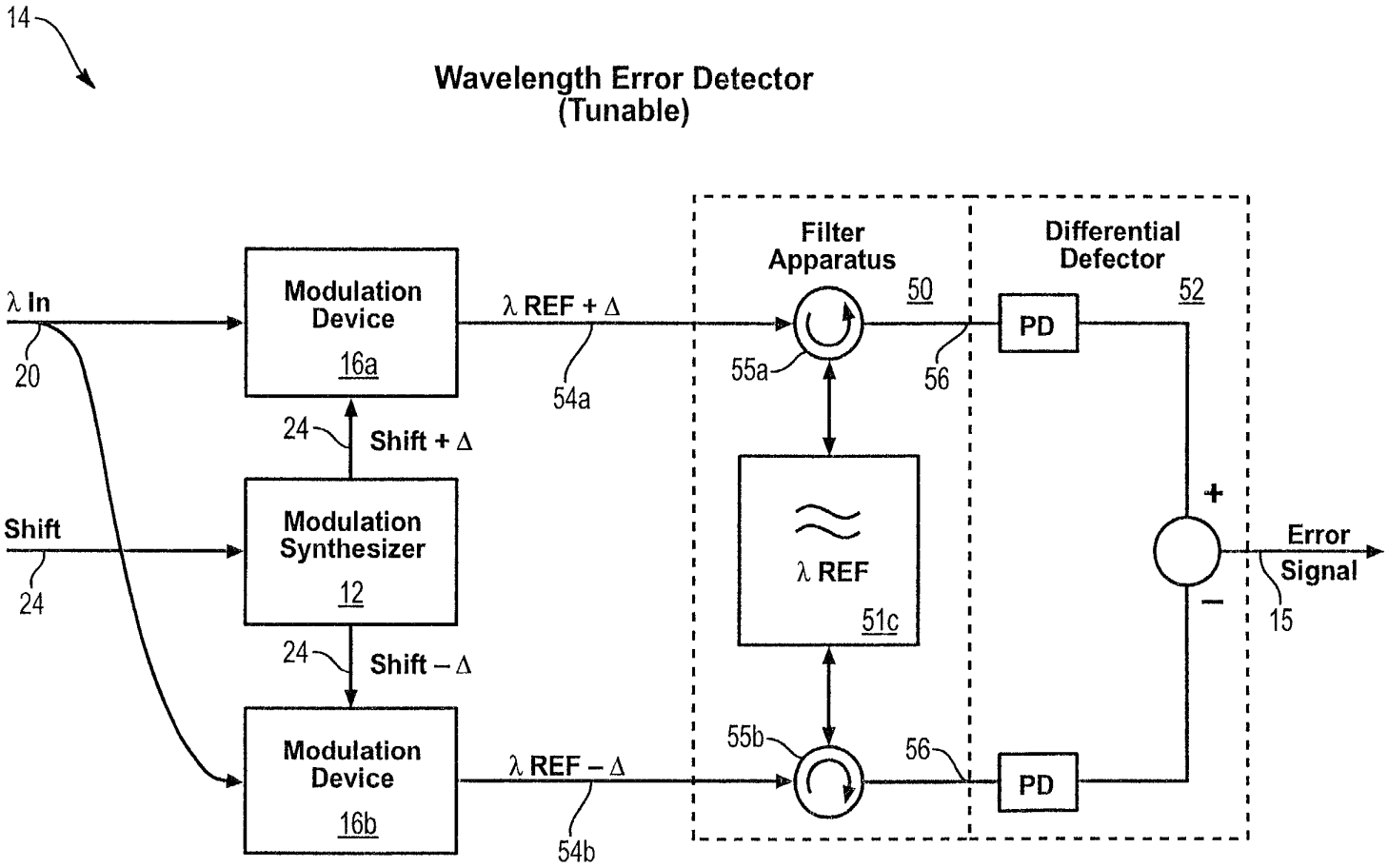


FIG. 10

Patent Application

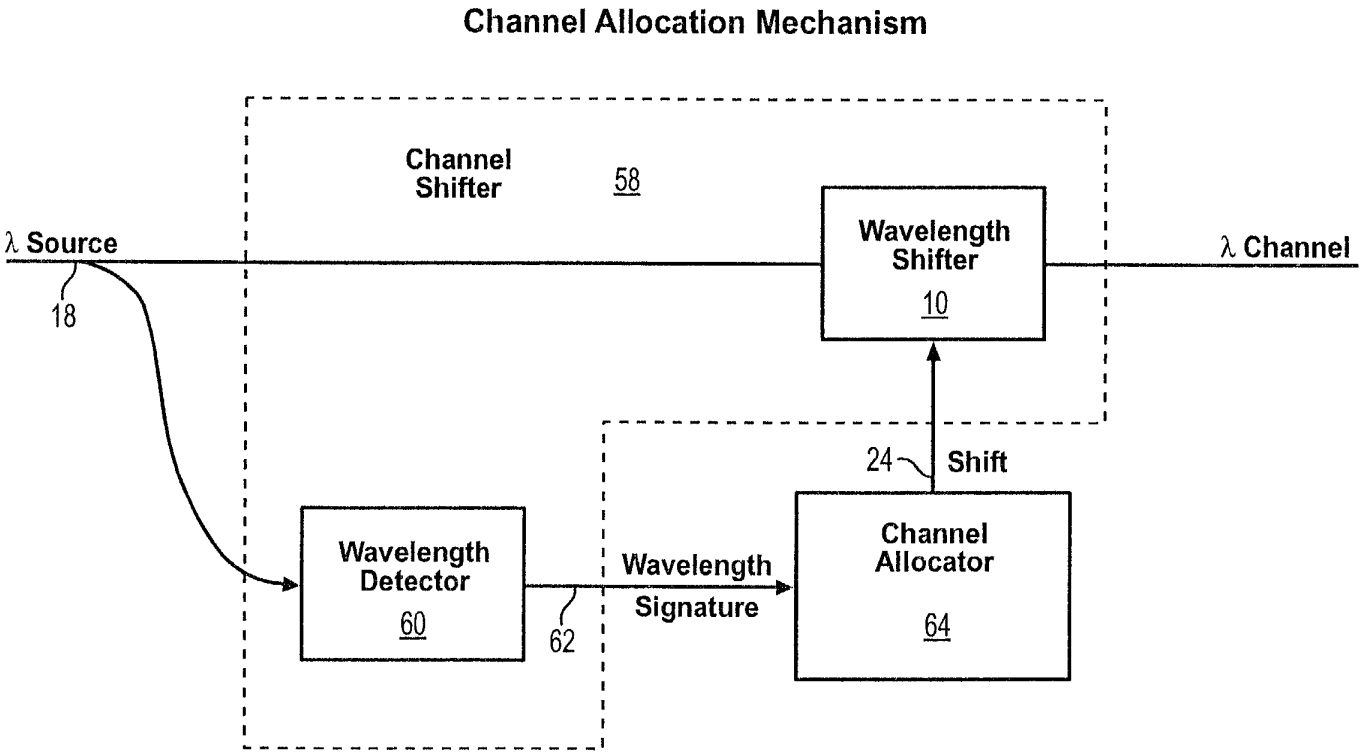


FIG. 11

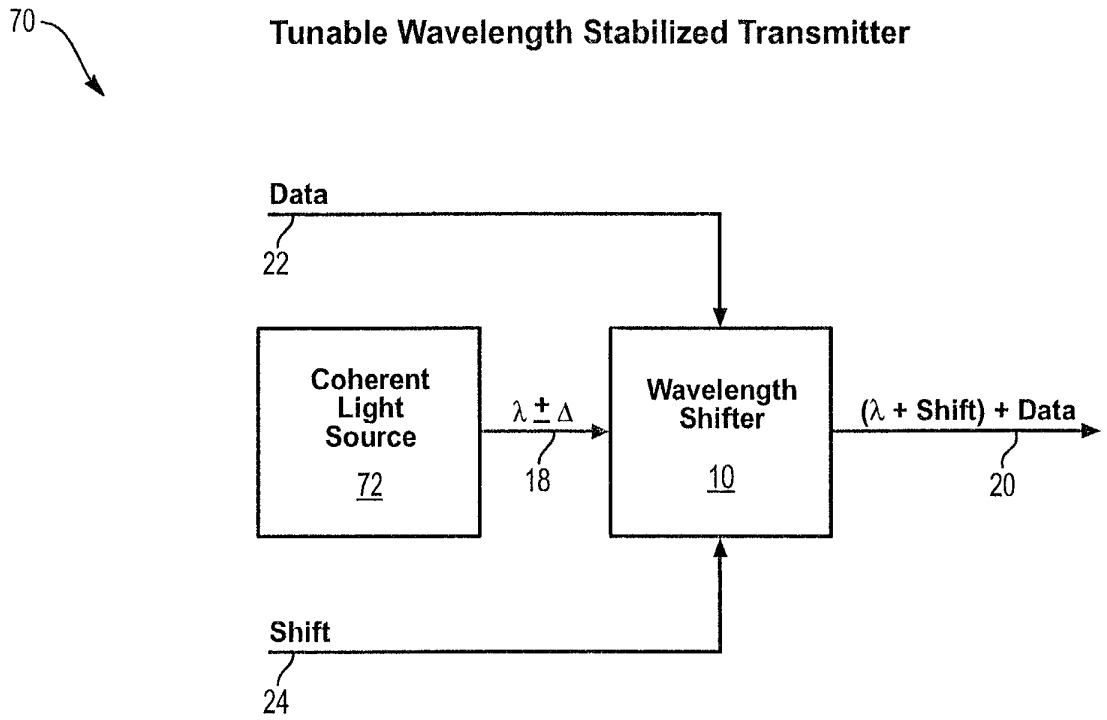

70
Tunable Wavelength Stabilized Transmitter
Data
22
Coherent Light Source
72
λ ± Δ
18
Wavelength Shifter
10
(λ + Shift) + Data
20
Shift
24

FIG. 12

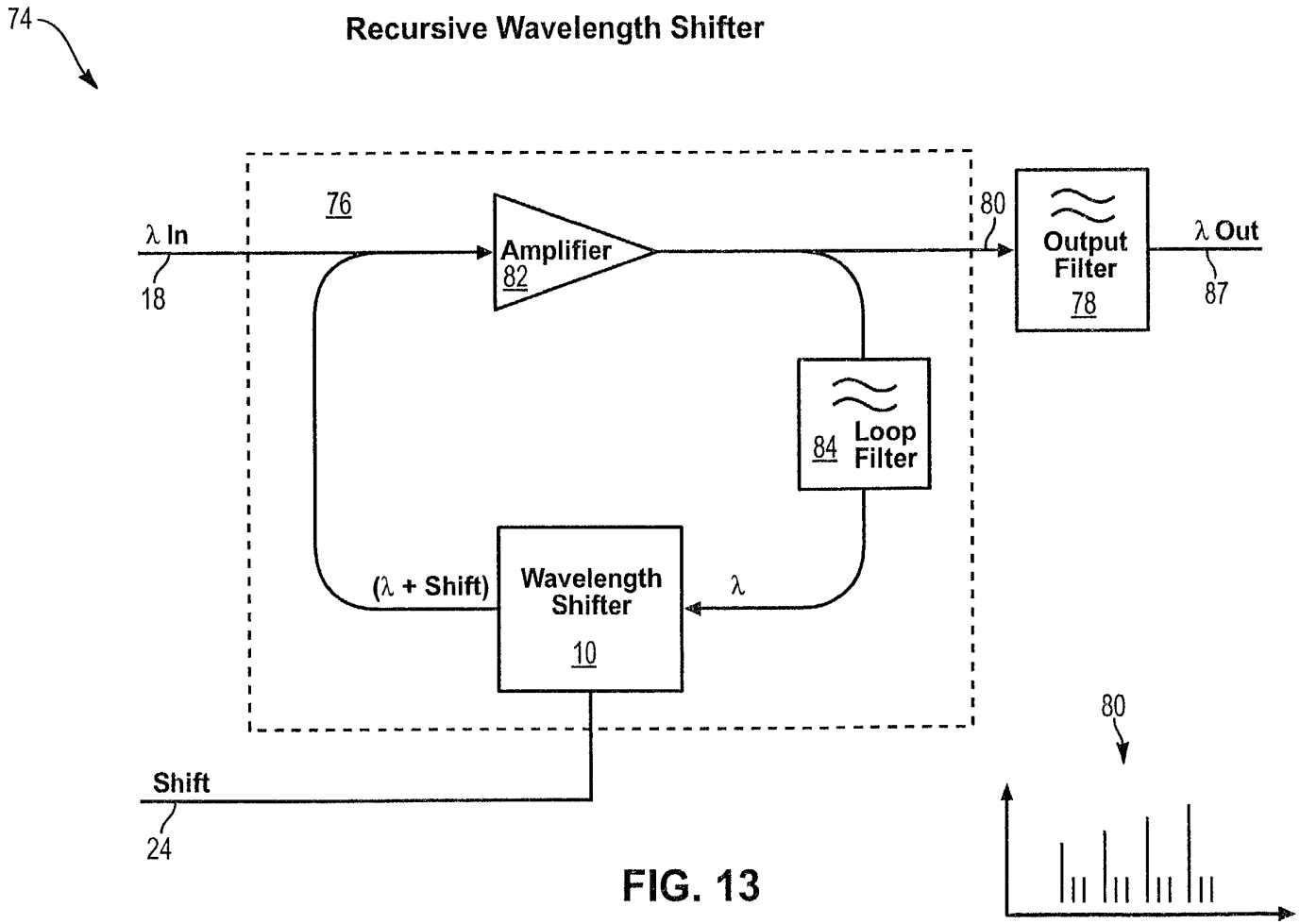

74
Recursive Wavelength Shifter
76
λ In
18
Amplifier
82
80
Output
Filter
78
λ Out
87
84 Loop
Filter
(λ + Shift)
Wavelength
Shifter
10
λ
Shift
24
80

FIG. 13

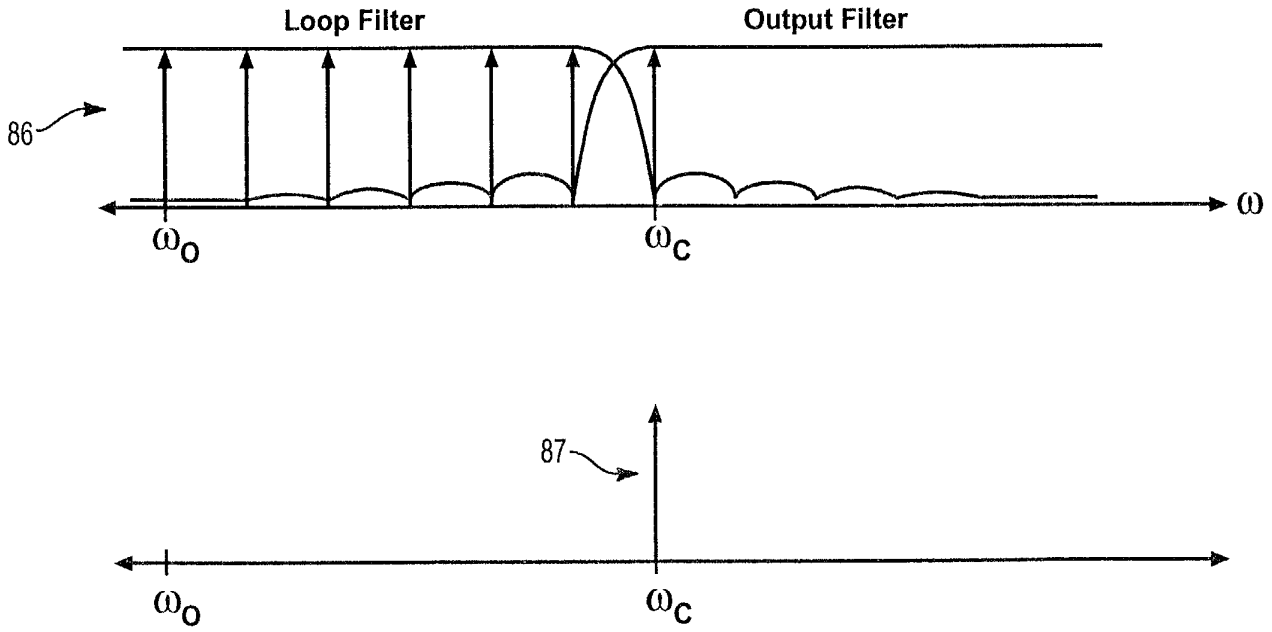

Loop Filter
Output Filter
86
ω
ω_O
ω_C
87
ω_O
ω_C

FIG. 14